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NOTES ON ANTHRIBID WEEVILS. I. SOME INDO-AUSTRALIAN GENERA RELATED TO *EUCORYNUS*

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The examination of a variety of anthribid types in European museums reveals a need for so many taxonomic changes that a meaningful analysis of the world fauna based on existing literature is not possible. I expect to summarize the necessary changes from time to time, and when feasible to review in broad terms our knowledge of the taxa involved. This is the first of these summaries, it involves new generic and specific synonymy, locates omitted names and misplaced species, verifies synonymies mentioned in but not supported by the literature, and reviews biological data. Most of the taxonomic observations were incidental to other studies and thus vary considerably in detail; it is my intent to provide useful summaries of little-known or misunderstood taxa.

In the discussions which follow, type-localities are quoted from the original description; pin label data, when given, are identified as such, if omitted it is to be understood that they confirm the original description. When citing pin label data, each label is set apart by quotation marks, and a diagonal stroke / indicates lines within one label.

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Three often confused, partly sympatric, Indo-Australian genera are discussed: *Eucorynus* Schoenherr, *Ecelonerus* Schoenherr, and *Dendrotrogus* Jekel; two related genera, *Rawasia* Roelofs and *Basitropis* Jekel are mentioned more briefly. All have elongate parallel form; rostrum short, thick, without a deep epistomal excavation; eye rounded, finely faceted, lateral, notched or flattened on margin nearest the scrobe; transverse pronotal carina appearing antebasal (except *Basitropis*); and intercoxal process of mesosternum widened and angulate near the apex.

Immature stages of these genera are partly known, and it may be significant that larvae of *Eucorynus* (Gardner, 1936, 1937a, 1937b), *Dendrotrogus* (Gardner, 1936), *Rawasia* (Mathur, 1950), *Basitropis* (Gardner, 1937a, 1937b), and *Sintor* (Gardner, 1937b) have spiracles with multiple (3 or more) peripheral air tubes. In all other known anthribid larvae (about 35 genera) the spiracles are bicameral (2 peripheral air tubes), unicameral, or simple. The multiple air tubes suggest that the adult insects be checked for additional signs of relationship. I think that adults of *Eucorynus*, *Dendrotrogus*, *Rawasia*, and *Ecelonerus* (larvae of the last not known to me) are closely similar morphologically, and probably related. *Basitropis* is also a close relative, differing primarily in the more posterior position of the transverse pronotal carina. The last genus, *Sintor* Schoenherr, 1839, (type-species *Sintor quadrilineatus* Fahraeus, in Schoenherr, 1839, by original designation and monotypy), is more of a problem. I am not familiar with *Sintor floridus* (the species for which larvae are known), however the type of the genus is an elegant species with a long, slender beak, elongate-oval eyes, broad humeri, inflated metathorax, apically narrowed elytra and abdomen, evenly narrowed intercoxal process of the mesosternum, and is far removed from the prosaic, parallel-sided members of the present

complex. Apparently, multiperforate spiracles have evolved more than once in anthribid larvae.

A surprising amount of biological information has accumulated; most of the references are cited by Mathur (1957) who also lists 22 species of food plants for *Eucorynus*, 14 for *Dendrotrogus*, 12 for *Basitropis*, and 2 (both bamboo) for *Rawasia*. A reference not in Mathur's catalogue is Bhatia (1950) who mentions that larvae of *Dendrotrogus colligens* bore in the sapwood of sal (*Shorea robusta*). General information about habits and economic importance can be found in Beeson (1919, *Eucorynus*), Beeson (1941, *Eucorynus*, *Dendrotrogus*, *Basitropis*, and *Rawasia*), and Lefroy (1909, *Eucorynus*). The last author states only (p. 380) ". . . a dark colored insect found not uncommonly in tree bark in the plains." The only other biological information known to me are the twin reports by Blair (1924) and Dover (1924) of larvae thought to be *Eucorynus crassicornis* in the burrows of a carpenter bee *Xylocopa aestuans* L. in India. The observations were made by Dover in April 1922, on Barkuda Island in the Chilka Lake, Orissa. The bees tunnel into the branches of fig trees. Dover believes the anthribid larvae "were probably only stray intruders," but Blair says "larvae of the family Anthribidae were found in some numbers in the *Xylocopa* burrows, and since *E. crassicornis* was the only species found in any numbers the identity of the larva is presumed." Arrow (1923) lists the adult anthribids collected on Barkuda Island (identified by Karl Jordan); they are 6 *Eucorynus crassicornis* and 1 each of *Basitropis nitidicutis* (misspelled *nitidiscutis*), *Phloeobius gigas* var. *nigroungulatus*, and *Araecerus suturalis*.

Genus Eucorynus Schoenherr

Eucorynus Schoenherr, 1823, Isis von Oken, 1823(10): 1135.

Type-species: *Anthribus crassicornis* Fabricius, 1801, Syst. Eleuth. 2: 407, by original designation and monotypy.

The two Fabrician collections in Copenhagen each contain one specimen. The Kiel Collection (Fabricius' personal collection) contains a female labeled "crassicornis" written by Fabricius on a long rectangle of browned paper, and a second, more recent pencilled label with the number "154112." The Sehstedt and Toder Lund collection (studied by Fabricius) contains a female with a small green square on the pin

and a handwritten label reading "Sumatra. / Daldorff. / Mus. S. & T. L. / Crassicor: / nis. Fabr." In his original description, Fabricius states "Habitat in Sumatra. D. Daldorff."

This type-species has the antennal clubs four segmented, the lateral prothoracic carina extends only about halfway to the thoracic apex, the dorsal pubescence is setose, not flattened or scaly, the tibiae are rounded in cross-section, in frontal view the scrobes are partly open, there is no carina from scrobe to eye, and the sides of the rostrum at its base are rounded.

All of these features are shared with the genus *Rawasia* Roelofs, 1880, but *Rawasia* is immediately recognized among all Oriental anthribids by the laterally expanded second tarsal segment and the huge connate lobes of the third tarsal segment (the paired lobes of the third segment being fused together into a continuous large adhesive surface). In view of this, the species, *Eucorynus flavescens* Nakane, 1963, from Nakanoshima Island in the Tokara Islands (between Japan and the Ryukyu Islands) requires comment. The original description mentions four-segmented antennal clubs, incomplete lateral prothoracic carinae, enlarged second tarsal segments, and medially carinate rostrum. The first two features suggest *Eucorynus* or *Rawasia*, however the last two occur in *Rawasia* but not *Eucorynus*. Nakane et al. (1963, pl. 175, fig. 21) illustrate the species in color; the greatly enlarged second and especially third tarsal segments and the rostral carina are discernible. These features plus the overall facies require the transfer of the species *flavescens* from *Eucorynus* to *Rawasia flavescens* (Nakane), NEW COMBINATION.

A total of seven described taxa have the characteristics of *Eucorynus* and are congeneric, however most appear to be synonyms. A revised checklist follows.

Eucorynus crassicornis (Fabricius), 1801, Syst. Eleuth. 2: 407, (*Anthribus*), type-locality "Sumatra."

= *Eucorynus colligendus* Walker, 1859, Ann. & Mag. Nat. Hist. (3)3: 261, type-locality "Ceylon." NEW SYNONYMY.

= *Eucorynus setulosus* Pascoe, 1859, Ann. & Mag. Nat. Hist. (3)4: 434, type-locality "Philippine Islands. (Manilla?)." Synonymy by Jordan, 1913, Records Indian Mus., 9: 211.

= *Eucorynus stevensi* Pascoe, 1859, Ann. & Mag. Nat. Hist. (3)4: 433, type-locality "Dorey," New Guinea. NEW SYNONYMY.

= *Eucorynus mastersi* Blackburn, 1900, Trans. Royal Soc. S. Australia 24: 144, type-locality "Queensland." NEW SYNONYMY.

= *Eucorynus clavator* Fairmaire, 1903, Rev. d'Ent., 22: 43, type-locality "Ile Maurice." Synonymy by Jordan, 1913, Records Indian Mus., 9: 211.

Eucorynus unicolor Jordan, 1904, Ann. Mus. Genova (3)1: 85, type-locality "Ternate (Laglaize, Bruijn)." The two names in parentheses are apparently the collectors; Ternate is a small island off the west coast of Halmahera in the Moluccas.

The type of *Eucorynus colligendus* is in the British Museum. There is confusion surrounding this name, because Walker described two distinct but similarly sounding species both from Ceylon, on the same page of the same article, *Eucorynus colligendus* and *Eucorynus colligens*. The latter is a species of *Dendrotrogus*, and is discussed under that name. A number of workers (for example Wolfrum, 1929: 75) apparently thought that the spelling *colligendus* was an error for *colligens*, and that the two names apply to the same species; this is not so. Types of *Eucorynus mastersi*, *setulosus*, and *stevensi* are all in the British Museum. They appear to represent geographic trends which have not been carefully analyzed. The type specimen of *Eucorynus clavator* is, according to Fairmaire's original description, in the R. Oberthur collection now in Paris. If true, the specimen is not recognizable, for there is no *Eucorynus* labeled from Mauritius, nor is there any indication of types among those present. The synonymy appears reasonable because *Eucorynus crassicornis* (F.) is the only species in the complex known from Mauritius (Jordan, 1936: 276; 1937; and my own unpublished studies).

Genus Ecelonerus Schoenherr

Ecelonerus Schoenherr, 1839, Gen. et Sp. Curcul. 5(1): 163. Type-species: *Ecelonerus subfasciatus* Fahraeus, loc. cit. p. 164, by original designation.

= *Icelonirus* Gemminger and von Harold, 1872, Catal. Coleop. 9: 2742. (Emendation.)

The Schoenherr collection in Stockholm contains two males of the type-species. One is now labeled "Typus" printed on red, and "*Ptychoderes sub- / fasciatus*. Hope. / Melville, Novae / Holland: Hope." handwritten; the other "Swan Riv. / N: Holl. / Hope." handwritten. The red type label was originally on the Swan River specimen, but since Fahraeus states in the original description "Melville Novae Hollandiae, D. Hope." I switched it to its present position. The type labels were, of course, not placed by Schoenherr, but by a subsequent curator at the Naturhistoriska Riksmuseet.

The type-species has the following features. The antennal club is three segmented, the lateral prothoracic carina extends almost to the thoracic apex, the pubescence is short-scaly, not setose, the tibiae are slender and rounded in cross-section, in frontal view the scrobes are not open dorsally, there is no carina from scrobe to eye, and the sides of the rostrum at its base are rounded.

The seven species of this genus (see Wolfrum, 1929: 76 for a checklist) are confined to the Australian Region, occurring in Australia, New Guinea, Solomons, and Aru. The closely related genus *Dendrotrogus* Jekel is Oriental except for one species, *Dendrotrogus marmoratus* Montrouzier which duplicates the range of *Ecelonerus*.

One species, *Ecelonerus arciferus* (Blanchard), 1853, (as determined by Karl Jordan; I have not seen the type) starts a trend toward *Eucory-*

nus in that the scrobes are partly open in frontal view, but in most other features, it matches *Ecelonerus*; this species has the male antennae longer than the body, an anomalous feature, out of place in this complex.

Genus Dendrotrogus Jekel

Dendrotrogus Jekel, 1855, Ins. Saunders. 1: 80. Type-species: *Dendrotrogus hypocrita* Jekel, loc. cit. p. 82, by original designation and monotypy.

Xenotropis Fairmaire, 1895, Bull. Soc. Ent. France, 1895 (12–13): CCLXXXI. Type-species *Xenotropis rugicollis* Fairmaire, loc. cit. p. CCLXXXII, by original designation and monotypy. NEW SYNONYMY.

Jekel's male type is in the British Museum. It bears four labels which read "Hypocrit. / Jek." written by Jekel on a tiny rectangle; "Coll Jekel"; "Bowring. / 63.47*"; and a British Museum "Holotype" label printed within a red ring. The British Museum also has a specimen from the W. W. Saunders collection from "Ceylon" but it is too big to be Jekel's type, and has different locality data. Fairmaire's unique type is in the Charles Alluaud collection in the Museum National d'Histoire Naturelle, in Paris. It is a male labeled "Iles Seychelles / La Digue / Ch. Alluaud 1892." printed on white; "MUSEUM PARIS / Coll. Ch. ALLUAUD" printed on blue; and "Xenotropis / rugicollis / Fairm. n g / n sp" handwritten, probably by Fairmaire. The types of the two genera represent different species, but are congeneric.

Dendrotrogus hypocrita has the antennal club three segmented, the lateral prothoracic carina extends almost to the thoracic apex, the pubescence is scaly, not setose, the tibiae (especially the anterior pair) are robust and rectangular in cross-section, in frontal view the scrobes are lateral and covered, not partly open, there is a carina from scrobe to eye, so the side of the beak at the base appears somewhat flattened and angulate, not rounded. The genus contains eight Oriental species and one from the Australian Region.

Dendrotrogus angustipennis Jordan, 1895, Stettin Ent. Zeit. 56(1–6): 191, type-locality "Carin Cheba, 400m, und Teinzo, Birma (L. Fea leg); Cochinchina. 18 Exemplare."

Dendrotrogus colligens (Walker), 1859, Ann. & Mag. Nat. Hist. (3)3: 261, (*Eucorynus*), type-locality "Ceylon."

= *Xenotropis rugicollis* Fairmaire, 1895, Bull. Soc. Ent. France, 1895 (12–13): CCLXXXII, type-locality "Iles Seychelles, La Digue." NEW SYNONYMY.

Dendrotrogus conspectus Jordan, 1923, Opusc. Inst. Scient. Indochine, 1: 93, type-locality "Laos:Pak-Neum, I (R. Vitalis de Salvaza)."

Dendrotrogus feae Jordan, 1895, Stettin Ent. Zeit. 56(1–6): 192, type-locality "Teinzo, Birma (L. Fea leg; 2♂, 1♀)."

Dendrotrogus hypocrita Jekel, 1855, Ins. Saunders., 1: 82, pl. 2, fig. 1, type-locality ". . . . . (India probabiliter?)."

= *Dendrotrogus fallax* Jekel, 1855, loc. cit. (lapsus for *hypocrita*, see addenda et corrigenda in Jekel, 1860, Ins. Saunders., 2: 237).

Dendrotrogus hypocrita enganensis Jordan, 1897, Ann. Mus. Genova (3) 18: 642, type-locality "Engano, Bua Bua, May and June 1891 (Modigliani)." Engano is a small island off the south west coast of Sumatra.

Dendrotrogus hypocritia levis Jordan, 1929, Treubia, Fauna Buruana 7 (4): 337, type-locality "Station 9 . . . and 10" Buru Island.

Dendrotrogus marmoratus (Montrouzier), 1855, Ann. Soc. Imper. Agric. Lyon 7:45, (*Eucorhinus* sic), type-locality not given, but by inference Woodlark Island.

= *Dendrotrogus colligens papuanus* Jordan, 1904, Ann. Mus. Genova (3)1: 84, type-locality "Andai, Dutch N. Guinea (W. Doherty)." NEW SYNONYMY.

Dendrotrogus perfolicornis (Fabricius), 1801, Syst. Eleuth 2: 407, (*Anthribus*), type-locality "Sumatra."

Dendrotrogus reticulatus Jordan, 1923, Opusc. Inst. Scient. Indochine 1: 94, type-locality "Laos:Xieng-Khouango, V (R. Vitalis de Salvaza)."

Dendrotrogus variolosus (Motschoulsky), 1874, Bull. Soc. Nat. Moscou 48: 231, (*Eucorynus*) type-locality "Du continent indien, Siam."

Dendrotrogus colligens (Walker), described from Ceylon, occurs also in southern India and the Seychelles. Males have a hemispherical patch of bristles on the center of the fifth abdominal sternum, as contrasted with *hypocrita* males which have a weak transverse line of bristles at the same site. Walker's species differs from all of the others in the genus in having the scrobes dorsolateral and weakly open in frontal view suggesting *Eucorynus* Sch., however the scaly vestiture, squared tibiae, and laterally carinate rostral base clearly align the species with *Dendrotrogus*. Fairmaire's monotypic genus *Xenotropis rugicollis* is a normal *Dendrotrogus colligens*; the male holotype has a hemispherical patch of bristles on the center of the fifth abdominal sternum, the scrobes are weakly open, the tibiae are squared, the vestiture is scaly, etc.

The synonymy of *Dendrotrogus marmoratus* Montrouzier and *D. colligens papuanus* Jordan is by Jordan (in litt.). I have not seen type material of *marmoratus*, but long series of *Dendrotrogus* from northern Australia, New Guinea, and adjacent islands in the British Museum appear to represent only one species. Regardless of the synonymy, *papuanus* is not a subspecies of *colligens*, having closed rather than weakly open scrobes.

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